

5/28/2018

Print



Dart Hawkesbury  
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada  
Tel (613) 632-5200

## Purchasing Receipts

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Days	Past Due	To
PO039811	ACI001-VC	3	1	Net 30	MT-4140QT-R2.500	AISI 4140 Quenched &Tempered Steel Round Bar 2.500" Dia. : AISI 4140 Q&T Round Bar : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT				6	5/28/2018	6		S075047	Stock	5/28/2018	\$ 26.86 / ft	0		\$11
Total:										6		6								\$12

Plex 5/28/2018 1:00 PM Dart Dubois Pascal



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# **PURCHASE ORDER** **PO039811**

**Supplier:** ACI001-VC  
Acier Ouellette Inc.  
935 Boul. Du Havre  
Valleyfield  
QC  
J6S 5L1 Canada  
Phone: 800 667 4248  
Fax: 450 377 5696

**PO No:** PO039811  
**PO Date:** 5/14/18  
**Due Date:** 5/11/18  
**Purchase Order Revision:**  
**Revision Date:**  
**Ship-To Contact:** Lavoie, Chantal  
Phone: clavoie@dartaero.com

*REUSED*

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**Via:** Ground  
**Pymt Terms:** Net 30  
**Freight Terms:**  
**Special Comments:** QUOTE NO. SOU0104308, SOU0104119

## Items

Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
3	MT-4140QT-R2.500		AISI 4140 Quenched & Tempered Steel Round Bar 2.500" Dia. : AISI 4140 Q&T Round Bar : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	Firmed	5/11/18	6 ft	0 ft	6 ft	\$26.8612666/ft	\$161.17
5	MT-4140QT-R0.500		AISI 4140 Quenched & Tempered Steel Round Bar 0.500" Dia. : AISI 4140 Q&T Round Bar : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	Firmed	5/11/18	6 ft	0 ft	6 ft	\$3.345/ft	\$20.07

**Grand Total: \$181.24**

## Order Notes

Procurement Quality Clauses  
A005 right of entry  
A012 chemical and physical test report  
A016 personnel qualification  
A017 raw material identification (as applicable)  
A026 certification of material conformance  
A041 quality management system  
A042 dart notification by supplier  
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

DAS  
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9-89

DAS  
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## DELIVERY - CLIENT

CO00091287

### ACIER OUELLETTE INC.

935, Boul. du Hâve  
Salaberry de Valleyfield (Québec) J6S 5L1  
Tél.: 450-377-4248 Mtl: 514-336-4248 Ext.: 800-667-4248  
Fax: 450-377-5696 Mtl: 514-336-4246 Ext.: 866-456-4242

Customer N°

CL10001056

Date

2018/05/24

Delivery date

2018/05/28

Your order N°

PO039811

Processed by

Eric Kaehlert

Salesman

Carrier

OUELLETTE VALLEYFIELD

Credit Terme

Net 30 Days

### Billed to

DART AEROSPACE LTD

1270, ABERDEEN ST.  
HAWKESBURY, Ontario, K6A 1K7

### Shipped to

, Ontario,

Att : CHANTAL LAVOIE Tél.: 613-632-5200

Instruction F-M

Delivery Route 5

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Product Description	Weight	Qty	U/M	PCS NB			Internal Use Only				
				CMD	EXP	B/O	IN	I	S	C	OUT
1 ROUND 4140 HEAT TREAT 2 1/2 (R) R4140-212H 4923	100.14	6.00	PL_\$CLB		6'		106"				39"
COUPE A LA SCIE SCIE 1		1.00	UN				6'				
1 x 6' HT # 75068192 LINE #3											
MAY 28 2018 DAS 9-89											

Conditions : Total Weight (Lbs) : 100.14 NIR : R-109516-6

All sold and delivered materials remain the property of "Acier Ouellette Inc" until payment is made in full, complete and cashed. All lost materials are at the buyer's expense. The warranty offered by "Acier Ouellette Inc." is the same as offered and honored by the manufacturer and his warranty is transferred by "Acier Ouellette Inc." to the client. The buyer hereby accepts to respect the following conditions: Net 30 days from billing date and the buyer accepts to pay administration charges of 2% per month (24% per annum) on all past due amounts over 30 days. Any default in respect with this contract will lead to payment by acceleration and permits to the seller, at his choice to claim for the balance due or the repossession of the goods sold. All claims must be made within five (5) days with this document enclosed. Any merchandise that has been damaged, cut or modified cannot be returned. All goods returned must be with our authorization and are subject to a 25% restocking charge.

Prepared By :

Verified By :

Delivered By :

Time

11:23

Y M D

Total (\$CAD)

Ja

11:23

Customer's Signature

Date

MC

# Eaton Steel Bar Company Inspection Certificate 1670723

EN 10204:2004-3.1

Customer	BOL	Ship Date	Customer PO	Item	Customer Item	Item Description
	218329	28-Sep-2017	B38179	11140 rev 005	506289	2-1/2 HR RD 4140/42MM 24R8in SBQ QTSF FG MST

All bundles listed below were produced using steel from Heat 75068192 issued by GENDAU-MONROE and were completed from Eaton Steel Job 82253.

Chemistry	Description	Value	Units	Mechanical	Description	Value	Units
C	Carbon	0.4000	PMGT	TENSILE PSI	Tensile Strength in PSI Units	131500	PSI
Mn	Manganese	0.8600	PMGT	YIELD PSI	Yield Strength in PSI Units	110000	PSI
P	Phosphorus	0.0080	PMGT	ELONGATION	Percent Elongation	23.00	PCT
S	Sulfur	0.02100	PMGT	REDUCTION	Percent Reduction in Area	64.0	PCT
Si	Silicon	0.25000	PMGT	BRIEFL SURF	Bridell Surface	297.0	BHN
Ni	Nickel	0.16000	PMGT	Heat Treating	Description	Value	Units
Cr	Chromium	1.01000	PMGT	TEMPER TEMP F	Temper Temp in Fahrenheit	500 - 2500	DEGF
Mo	Molybdenum	0.17000	PMGT	AUSTEN TEMP F	Austenitize Temp in Fahrenheit	1600 - 1700	DEGF
Al	Aluminum	0.02400	PMGT	SR TEMP F	Stress Relief Temp in Fahrenheit	500 - 2500	DEGF
Cu	Copper	0.19000	PMGT	MAGNETISM-HT	Magnetism in Gauss	0 - 20	GN
V	Vanadium	0.00400	PMGT	TIME AT TEMP	Time at Temperature	Report	
Co	Columbium	0.00100	PMGT	STRESS FREE	Cart stress free	CERTIFIED	
N	Nitrogen	0.00000	PMGT	HT4140-420T	Quench & Temper	CONFORMS	
P+S	Element Sum Limit	0.02900	PMGT	Mill Processing	Description	Value	Units
DT	Ideal Diameter	5.32000	IN	ROLLED COUNTRY	Melted in Country	USA	
Cleanliness	Description	Value	Units	ROLLED COUNTRY	Rollled in Country	USA	
MACRO ETCH	Report macro etch results.			RBD RATIO	Reduction Ratio	13.70	RBD
Geometry	Description	Value	Units	ASTM Standard	Steel Bars, Carbon & Alloy, Hot wrought	CONFORMS	
DIAMETER	Diameter	2.5000 - 2.5313	IN	A193/A29M-16	Grade B7	CONFORMS	
Geometry	Description	Value	Units	A193/193M-01	Grade B7	CONFORMS	
J1	1/16 inch from Quenched End	56	HRC	A434-90a-BC	ASTMA BC Tensile and Yield properties	CONFORMS	
J2	2/16 inch from Quenched End	56	HRC	STRUCTURE	Percent Tempered Martensite	80 - 100	PCT
J3	3/16 inch from Quenched End	56	HRC	PERCENT TM	Reported Microstructure	7046 lBS	
J4	4/16 inch from Quenched End	56	HRC	MICROSTRUCTURE	Tag Number	029-2071367A	
J5	5/16 inch from Quenched End	56	HRC				
J6	6/16 inch from Quenched End	56	HRC				
J7	7/16 inch from Quenched End	55	HRC				
J8	8/16 inch from Quenched End	54	HRC				
J9	9/16 inch from Quenched End	53	HRC				
J10	10/16 inch from Quenched End	52	HRC				
J11	11/16 inch from Quenched End	50	HRC				
J12	12/16 inch from Quenched End	49	HRC				
J13	13/16 inch from Quenched End	47	HRC				
J14	14/16 inch from Quenched End	45	HRC				
J15	15/16 inch from Quenched End	45	HRC				
J16	16/16 inch from Quenched End	45	HRC				
J17	17/16 inch from Quenched End	45	HRC				
J18	18/16 inch from Quenched End	44	HRC				
J19	19/16 inch from Quenched End	44	HRC				
J20	20/16 inch from Quenched End	44	HRC				
J21	21/16 inch from Quenched End	44	HRC				
J22	22/16 inch from Quenched End	42	HRC				
J23	23/16 inch from Quenched End	40	HRC				
J24	24/16 inch from Quenched End	40	HRC				
J25	25/16 inch from Quenched End	37	HRC				
J26	26/16 inch from Quenched End	37	HRC				
J27	27/16 inch from Quenched End	37	HRC				
J28	28/16 inch from Quenched End	37	HRC				
J29	29/16 inch from Quenched End	37	HRC				
J30	30/16 inch from Quenched End	37	HRC				
J31	31/16 inch from Quenched End	37	HRC				
J32	32/16 inch from Quenched End	37	HRC				

Bundle tags with Eaton Steel Identifiers reference the steel grade, heat, purchase order number where applicable, part number, product description and quantity. Material produced in accordance with Eaton Steel's Quality Manual QM-00002 Rev 0 dated 11/2/2013.

We hereby certify the above to be in conformance, and a true copy of data represented in company records. This steel was not subject to weld repair or exposed to mercury while in the possession of Eaton Steel.

Created on 28-Sep-2017  
 Thomas Snabes, Corporate Metallurgist  
 This document was prepared in accordance with Eaton Steel's Quality Manual QM-00002 Rev 0 dated 11/2/2013.  
 data processing and is valid without signature  
 10221 Capital Avenue, Oak Park, MI 48237 USA  
 http://www.eatonsteel.com  
 Tel: 248-398-3434  
 Fax: 248-398-1434



GERDAU SPECIAL STEEL NORTH AMERICA  
5591 MORRILL ROAD  
JACKSON, MICHIGAN 49201

CERTIFIED MATERIAL TEST REPORT

CUSTOMER ORDER NUMBER	CUSTOMER PART NUMBER	SEAL NUMBER	WORK ORDER NUMBER	DATE
163386	10911/4140/42MM	75068192	312585 102	8/17/17

210mm Billet

REF TO

REPORT TO

DAN MCNAUGHTON  
EATON STEEL CORPORATION  
10221 CAPITAL

EATON STEEL CORPORATION  
C/O APOLLO HEAT TREAT  
10400 CAPITAL STREET

OAK PARK, MI 48237

OAK PARK, MI 48237

ORDERED

GRADE	SIZE	RND	LENGTH
4140/42MM	2 1/2"		24' 10"

ITEM 10911 REV 10 DTD 02/26/14; A304-16; A322-13

CHEMICAL ANALYSIS

C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Sn	Al
0.40	0.86	0.008	0.021	0.25	0.16	1.01	0.17	0.19	0.009	0.024
V	Nb									
0.004	0.001									

GRAIN SIZE

SPECIFICATION ASTM E112

FINE GRAIN 5-8

HARDENABILITY

SPECIFICATION ASTM A255/A304

THEORETICAL

U1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	20	22	24	26	28	30	32	34
56	56	56	56	56	56	55	54	53	52	50	49	48	47	46	45	45	44	44	42	42	40	38	37	

DI CALCULATION

SPECIFICATION CAT 1B0024

5.32

REDUCTION RATIO

SPECIFICATION ITEM 10911

RATIO= 13.7 TO 1.0

PAGE 1

We certify that these data are correct and in compliance with specified requirements.

Gerdau Metals  
3000 East Zeeb Road  
Monticello, MI 48861

*Patrick Doyle*  
Patrick Doyle  
Quality Assurance Representative

CONTINUED ON PAGE 2

GERDAU SPECIAL STEEL NORTH AMERICA  
5591 MORRILL ROAD  
JACKSON, MICHIGAN 49201

**CERTIFIED MATERIAL TEST REPORT**

CUSTOMER ORDER NUMBER	CUSTOMER PART NUMBER	TEST NUMBER	NOTE ORDER NUMBER	DATE
163386	10911/4140/42MM	75068192	312585 102	8/17/17

210mm Billet

REPORT TO

DAN MCNAUGHTON  
EATON STEEL CORPORATION  
10221 CAPITAL

EATON STEEL CORPORATION  
C/O APOLLO HEAT TREAT  
10400 CAPITAL STREET

OAK PARK, MI 48237

OAK PARK, MI 48237

**ORDERED**

GRADE	SIZE	RND	LENGTH
4140/42MM	2 1/2"	RND	24' 10"

ITEM 10911 REV 10 DTD 02/26/14; A304-16; A322-13

RESIDUAL MAX SPECIFICATION ITEM 10911

P+S = 0.0290

RESIDUAL MIN SPECIFICATION ITEM 10911

P+S = 0.0290

ASTM E381 MACRO ETCH SATISFACTORY: SI/RI/CI; MEETS SAE J422

SE/05 RATING (WORST FIELD);

\*\* MATERIAL 100% MELTED AND MANUFACTURED IN THE U.S.A. BY THE ELECTRIC ARC FURNACE AND CONTINUOUS CASTING METHOD. THE PRODUCT HAS NOT BEEN REPAIRED BY WELDING AND THIS MATERIAL HAS NOT BEEN EXPOSED TO MERCURY OR TO ANY OTHER METAL ALLOY THAT IS LIQUID AT AMBIENT TEMPERATURES DURING PROCESSING OR WHILE IN OUR POSSESSION. GERDAU MONITORS ALL INCOMING SCRAP AND ALL HEATS OF STEEL TO ENSURE THAT PRODUCTS SHIPPED ARE FREE OF RADIOACTIVE MATERIAL.

PAGE 2 OF 2

We certify that these data are correct and in compliance with specified requirements.

Gerdau Monroe  
3000 East Front Street  
Monroe, MI 48161

*Patrick Doyle*

Patrick Doyle

QUALITY ASSURANCE REPRESENTATIVE

# Lab Services Report



10221 Capital Avenue  
Oak Park MI 48237  
(248)543-3578 telephone  
(248)398-1434 facsimile

Bill To: Apollo Heat Treating and Processing Company, L.L.C

10400 Capital Avenue

Oak Park, MI

Attn: Randy Call

rcall@apollohtp.com

Ship To: Apollo Heat Treating and Processing Company, L.L.C

10400 Capital Avenue

Oak Park, MI

Report Date: 9/12/2017

Report ID: 17-3553

Request ID:

This report contains results for the indicated services performed on the following sample(s):

Part No.	11140	Finish	HR	Shape	Round
Size	2.500	Grind	4140	Weld Grade	822253
Titan Sample ID	17-3553-1	75088192	822253	JOB 2944	

*Steve Avery*

Report Approved By: Steve Avery

## Mechanical Testing

ASTM E8M-10a

ASTM E10-10a

Sample ID	17-3553-1	131,500	110,000	23	64	207
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Test Comments

Mechanical tested at Microdus



Any services within a section marked with \* are not part of Titan Metallurgy's current AZLA accreditation.  
All testing performed by Titan Metallurgy was done at ambient (room) temperature.

Report ID: 17-3553  
Page 1 of 1



# APOLLO

Heat Treating & Processing Company, LLC.

10400 Capital Avenue • Oak Park, Michigan 48237 • (248) 398-3434


## CERTIFICATION OF HEAT TREATMENT

Date: 9 / 18 / 2017  
Certification Number: 17 - 0642  
Customer Order Number: 822253  
Part Number: 10614 - 11140  
Heat Number: 75068192  
Heat Treat Job Number: 2944

Material: 4140  
Quantity: 57 Pcs.  
Weight: 23,849 Lbs.  
Description: 2.5000" Diameter x 24" g" Length  
Per Specification: ESHT HT4140-42QT

	Temperature	Time at Heat	Coolant
Normalized	N/A		
Preheat	N/A		
Austenitized/Hardened	1550 °F	55 Minutes	
Spray Quenched	103.7 °F - 104.4 °F	N/A	Water
Temper	1200 °F	1 Hour 30 Minutes	Air Cooled to Ambient
Temper	N/A		

Method of heat treat monitor, set point thermocouple (Type K). Equipment calibrated per AMS2750E.  
We hereby certify the above material has been treated in the manner described are correct as contained in the records of Apollo Heat Treating and Processing, LLC.

  
Randy L. Fall  
Plant Manager  
Apollo Heat Treating & Processing, LLC



# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-4140QT-R2.500  
 DATE: MAY 28 2018

PO / BATCH NO.: 039811/5075047

MATERIAL CERT REC'D: yes  
 QUANTITY RECEIVED: 61  
 QUANTITY INSPECTED: 61  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 2.500  
 THICKNESS RECEIVED: 2.500  
 SHEET SIZE ORDERED: N/A  
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	4140QT-42QT
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	#20# 75068192
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

<b>QC 18 INSPECTION</b>		<b>ENGINEERING SIGNOFF (if required)</b>	
INSPECTED BY: <u>DAS</u>	SIGNED OFF BY: _____		
DATE: <u>11 MAY 28 2018</u> <small>9-89</small>	DATE: _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL : AISI 4140 QUENCHED & TEMPERED STEEL ROUND BAR

SPECIFICATION:

ASTM 4140 QT or ASTM 4142 QT

PART NUMBER:

MT-4140QT-R-0.625

WHERE "D.DDD" = DIAMETER IN INCHES

EG. 5/8" ROUND BAR = MT-4140QT-R0.625

REV.	DESCRIPTION	DATE	BY	APPROVED
A	NEW ISSUE	17.09.12	WM	WM

<b>DART</b> AEROSPACE		Headhury, Ontario, Canada	
TITLE AISI 4140 Q&T ROUND BAR			
OWNED NO.	REV	REV	
	MT-4140QT-R	A	
DESIGN BY:	VM 8/9/2017	3X	3X
DRAWN BY:	VM 09/14/2017	3X	3X
UNDESIGNED	VM 09/14/2017	3X	3X
UNCHECKED	VM 09/14/2017	3X	3X
QA APPL:	VM 09/14/2017	3X	3X
APPROVED:	VM 09/14/2017	3X	3X
DATE:	9/14/2017	3X	3X
SCALE: NTS WEIGHT: 0.0 LBS			
SHEET 1 OF 1			
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ECW 17-655